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EXAMINER				
CHAKOUR, ISSAM				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/562,918

Applicant(s)

MORIMOTO, SHINICHI

Examiner

ISSAM CHAKOUR

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This office action is responsive to the request for continued examination, amendment, and arguments made by the applicant filed on 05/13/2009.

The applicant amended claims 17, 22, 28, and 32.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 17, 20, 21, 28, and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Hirano et al (US 2004/0247278).

3. Regarding claims 17 and 28, Hirano teaches a communication system comprising:

a plurality of access point apparatus arranged along a predetermined route (See figure 6, items 11), a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route (See figure 6, items 33) transmitting on a plurality of frequencies (See [0056] lines 3-4) and an intra-mobile-body communication network for connecting the plurality of station apparatus (See figure 7A, items 31), the station apparatus being adapted to become belonging to one of the access point apparatus by

wireless communication so as to be connected to a network by way of the access point apparatus (See figure 7A), the station apparatus located front-most in the moving direction of the mobile body (See figure 8A, item 33 in the first vehicle towards the second communication feasible area) being adapted to transmit the information comprising a frequency of a plurality of frequencies (See [0056] lines 3-4) acquired at the time of retrieving an access point apparatus to which the station apparatus located front-most in the moving direction of the mobile body is adapted to belong (See figure 7A, access point 19 in communication with item 33), to the station apparatus other than the station apparatus located front-most in the moving direction of the mobile body (See figure 8A-D, item 33 in the first vehicle that was in communication with item 19 in the first communication feasible area is no longer communicating with that access point, but item 33 in the last vehicle is still retrieving data through 19 in the first communication feasible area) by way of the intra-mobile-body communication network (See figure 7A, items 31). Wherein upon the station apparatus other the station apparatus located front most in the moving direction of the mobile body moves out of contact of a prior access point (See figure 7B, there exist a plurality of station apparatuses or elements 33 in each mobile body), the information acquired at the time of retrieving the access point apparatus to which the station apparatus located front most in the moving direction of the mobile body is adapted to belong is used to connect the station apparatus other than the station apparatus located front most in the moving direction to the access point apparatus without performing a scan of the plurality of frequencies (See [0075], lines 8-14, note that Hirano in figure 7B, discloses a second station apparatus that receives the

information about the AP that has been connected to the front most station by way of the intra-mobile-body network).

4. Regarding claim 20, Hirano discloses a communication system in accordance with claim 17, wherein each of the station apparatuses has means for judging or detecting (See paragraph [0074], lines 4-11) if the own apparatus is located front-most in the moving direction of the mobile body or not (see also figure 6).
5. Regarding claim 21, Hirano teaches a communication system in accordance with claim 17, wherein when two or more than two station apparatus are located front-most in moving direction, at least one of the station apparatus keeps on belonging to the access point apparatus while the other station apparatus retrieves an access point apparatus to which it is adapted to belong when the communication quality is degraded relative to the access point apparatus to which they are belonging (See paragraph [0074] and [0075]).
6. Regarding claim 31, Hirano teaches the communication system according to claim 28, wherein when two or more station apparatuses on a mobile body is located front-most in the moving direction (See figure 7B, note that there are a plurality of station apparatuses or elements 33 in each moving body), at least one of the station apparatus keeps on belonging to the access point apparatus while the other station apparatus retrieves an access point apparatus to which it is adapted to belong when the communication quality is degraded relative to the access point apparatus to which they are belonging (See paragraph [0074] and [0075]).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 18, 19, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano in view of Syed (US. 6,845,230).

10. Regarding claims 18 and 19, Hirano discloses the communication system as in claim 17. Hirano does not teach explicitly that the transmissions in the communication system is both push and pull transmission. However, Syed discloses a communication system wherein the transmission involved is a Push-Pull transmission (See column 1, lines 35-40). Note that Push and the corresponding Pull transmission is widely used in digital packet-based synchronous communications and broadcasting such as the internet. It would have been obvious to one of ordinary skill in the art to combine Hirano's invention to include internet service as taught implicitly in Syed, because a

passenger in a train as disclosed Hirano might desire to check emails or other service online (See paragraph [0042] in Hirano, last line). Furthermore, Push-Pull transmission would also allow digital broadcasting at certain locations that a train might pass by.

11. Regarding claims 29 and 30, Hirano teaches the communication system in accordance with claim 28. Hirano does not teach explicitly that the transmissions in the communication system is both push and pull transmission. However, Syed discloses as mentioned above a communication system wherein the transmission involved is a Push-Pull transmission (See column 1, lines 35-40). It would have been obvious to one of ordinary skill in the art to modify the invention as disclosed by Hirano to integrate a Push-Pull technology as taught by Syed for the reasons discussed above.

12. Claims 22-27 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano in view of Moelard (US 5,636,217).

13. Regarding claim 22, Hirano discloses a communication system comprising: a plurality of access point apparatus arranged along a predetermined route (See figure 6, items 11) transmitting on a plurality of frequencies (See [0056] lines 3-4), a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route (See figure 6, station refers to items 33) and an intra-mobile-body communication network for connecting the plurality of station apparatus (See figure 7A, items 31), the station apparatus being adapted to become belonging to one of the access point apparatus so as to be connected to a network by way of the access point apparatus,

the station apparatus located front-most in the moving direction of the mobile body being adapted to store (Although Hirano does not explicitly teach storing the information, however sending information necessarily requires at least storing them in a memory for buffering after being processed, see paragraph [0075], lines 8-14) the information comprising a frequency of a plurality of frequencies (See [0056] lines 3-4) it acquires at the time of retrieving an access point apparatus (See paragraph [0075], lines 1-7) to be belonging to in the storage means by way of the intra-mobile-body communication network (e.g. the internal communication, see paragraph [0067], line 6), the station apparatus other than the station apparatus located front-most in the moving direction of the mobile body being adapted to refer to the information stored by the front-most station apparatus in the storage means prior to retrieving an access point apparatus to be belonging to (See paragraph [0075], lines 8-14).

Hirano does not explicitly disclose that each of the station apparatus having storage means for storing information showing the access point apparatus to which it used to belong to. However, Moelard discloses one of a plurality of stations each having storage means for storing information showing the access point apparatus to which it used to belong to (See claim 8 step b).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hirano's handover process with Moelard's teaching of storing information by each station of the access point apparatus that previously was registered to, because storing the information of access point being connected to or registered to would allow

other stations yet to be connected to have that information ready for a seamless handoff.

14. Regarding claim 32, Hirano discloses the communication system comprising a plurality of access point apparatus arranged along a predetermined route (See figure 6, items 11) transmitting on a plurality of frequencies (See [0056] lines 3-4),

Hirano further discloses that a plurality of station apparatus arranged on a plurality of mobile bodies adapted to move in the same direction along a predetermined route, and that each of the said mobile bodies having at least a station apparatus arranged thereon (See figure 7b).and

an inter-mobile-body communication network for connecting the plurality of station apparatus (See figure 7A, item 31),

the station apparatus being adapted to become belonging to one of the access point apparatus by wireless communication so as to be connected to a network by way of the access point apparatus (See figure 7),

each of the station apparatus having means for judging if it is located front-most in the moving direction of the mobile body or not (See figure 6),

the station apparatus arranged in the mobile body located front-most in the moving direction being adapted to store(See paragraph [0075], lines 8-14) the information comprising a frequency of a plurality of frequencies (See [0056], lines 3-4) it acquires at the time of retrieving an access point apparatus (See paragraph [0075], lines 1-7) to be

belonging to in the storage means by way of the intra-mobile-body communication network.

Hirano does not explicitly teach that each of the station apparatus having storage means for storing information showing the access point apparatus to which it used to belong to. He also does not teach that the station apparatus arranged in the mobile bodies other than the mobile body located front-most in the moving direction being adapted to refer to the information stored by the station apparatus arranged in the mobile body located front-most in the storage means prior to retrieving an access point apparatus to be belonging to.

Moelard discloses each of the station apparatus having storage means for storing information showing the access point apparatus to which it used to belong to (See claim 8b). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hirano's handoff process such that each station on each of the plurality of the mobile bodies stores the information of the access point apparatus previously registered to as thought by Moelard because storing the information of access point being connected to or registered to would allow other stations yet to be connected to have that information ready for a seamless handoff.

15. Regarding claim 23, Hirano in view of Moelard discloses the communication system in accordance with claim 22. Hirano further teaches that the intra-mobile-body is a local area network connecting a plurality of stations in a mobile body (See figure 7A, items 31). Hirano does not teach that the storage means is connected to the intra-

mobile-body communication network. However Moelard teaches that the storage means is connected to a wireless local area network (See claim 1). It would have been obvious to one of ordinary skill in the art to connect the storage means that contained access point information as taught by Moelard to other stations through a local area network taught by Hirano in order to perform transfer and exchange of such information for the purpose of handoff.

16. Regarding claim 24, Hirano in view of Moelard teaches the communication system according to claim 22, Hirano does not explicitly teach that the storage means is provided at each station. Moelard as mentioned above does teach the latter feature (See claim 8). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide in Hirano's invention each station in the mobile body with storage means as taught by Moelard because access point information available at the front-most station would be referred to the next station moving toward the access point in the direction the mobile body is moving.

17. Regarding claim 25, Hirano in view of Moelard teaches the communication system in accordance with claim 22, Hirano further teaches that each of the station apparatuses has means for judging or detecting (See paragraph [0074], lines 4-11) if the own apparatus is located front-most in the moving direction of the mobile body or not (see also figure 6).

18. Regarding claim 26, Hirano in view of Moelard the communication system according to claim 25, Hirano further teaches wherein each of the station apparatus judges if the own apparatus is located front-most in the moving direction of the mobile

body or not (See paragraph [0074], lines 4-11) according to the information from the front-most station (See paragraph [0075], lines 8-14). However Hirano does not teach that the information is from the storage means stored in its own storage and other station storage means. Moelard does teach said feature (See claim 8 b, c). Since the information about the next access point is retrieved from the storage means of the front-most station, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hirano's invention with Moelard's teaching because said information would allow other stations to determine if they are in the front-most and in the direction in which the mobile body is moving in order to successfully perform a seamless handoff.

19. Regarding claim 27, Hirano in view Moelard teaches the limitations as in claim 22, Hirano further teaches that when two or more than two station apparatus are located front-most in the moving direction (See paragraph [0066], line 6), at least one of the station apparatus keeps on belonging to the access point apparatus while the other station apparatus retrieves an access point apparatus (See figure 8A-D) to which it is adapted to belong when the communication quality is degraded relative to the access point apparatus (e.g. communication unfeasible area) to which they are belonging (See paragraph [0023]).

20. Regarding claim 33, Hirano in view of Moelard discloses the limitation as in claim 32. Hirano further teaches that the intra-mobile-body is a local area network connecting a plurality of stations in a mobile body (See figure 7A, items 31). Hirano does not teach

that the storage means is connected to the intra-mobile-body communication network. However Moelard teaches that the storage means is connected to an intra-mobile-body communication network (e.g. wireless local area network, see claim 1). It would have been obvious to one of ordinary skill in the art to connect the storage that contained access point information to other stations through a local area network in order to perform transfer and exchange of such information for the purpose of handoff.

21. Regarding claim 34, Hirano in view of Moelard teaches the communication system in accordance with claim 32. Hirano does not explicitly teach that the storage means is provided at each station. Nevertheless, Moelard as mentioned above does teach the latter feature (See claim 8). Note Moelard as mentioned above discloses that the storage means is connected to the intra-mobile-body communication network (e.g. wireless local area network, see claim 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide each station in the mobile body with storage means because access point apparatus information available at the front-most station (in the front-most mobile body) would be referred to the next station apparatus of the mobile body moving toward the access point in the direction the front-most mobile body is moving.

22. Regarding claim 35, Hirano in view of Moelard discloses the communication system according to claim 32. Hirano further discloses that the station apparatus in the mobile body located front-most in the moving direction judges (See paragraph [0074],

lines 4-11) if the mobile body where the own apparatus is arranged is located front-most in the moving direction or not (See figure 7b). However Hirano does not teach that the information is from the storage means stored in its own storage and other station storage means. Moelard on the other hand does teach said feature as previously mentioned (See claim 8 b, c). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hirano's invention with Moelard's teaching because said information would allow other stations to determine if they are in the front-most and in the direction in which the mobile body is moving in order to successfully perform a seamless handoff.

23. Regarding claim 36, Hirano in view of Moelard teaches the communication system as in claim 32. Moreover, Hirano teaches that when two or more than two mobile bodies where station apparatus are arranged are located front-most in the moving direction (see figure 7b), at least one of the station apparatus keeps on belonging to the access point apparatus while the other station apparatus retrieves an access point apparatus to which it is adapted to belong when the communication quality is degraded relative to the access point apparatus to which they are belonging (See paragraph [0074] and [0075]).

Response to Arguments

Applicant's arguments filed 05/13/2009 have been fully considered but they are not persuasive.

Regarding claim 17, the applicant submitted that in Hirano it is not necessary to acquire information at the time of retrieving the access point apparatus to which the station apparatus located front most in the moving direction of the mobile body is adapted to belong is used to connect the station apparatus other than the station apparatus, as that information (e.g. the frequency information) is not required as there is only one frequency. The applicant respectfully disagrees, and directs the applicant's attention to [0056] wherein it is suggested that the AP apparatus may employ different frequencies. Therefor, since there is a process in Hirano in which handoff is executed, the frequency information is retrieved and scanning is performed accordingly. The examiner notes that the applicant argues that scanning is essential step (See page 45 lines 16-18 in applicant's specifications) in the applicant's invention, yet claim 17 in the last lines discloses the process without performing a scan of the plurality of frequencies. According to the office action/examiner interpretation, it appears that scanning is an essential part of the claimed invention, but claim 17 isn't consistent in this particular point. Unlike to what the applicant has asserted that Hirano does not explicitly nor implicitly teach that frequency information is transmitted from the front station apparatus via an internal network to other cars station apparatus. The examiner respectfully disagrees and notes that Hirano discloses that the internal communication means which are connected to each other and that they exchange control connection switching or handover information to permit other external communication means to connect to the AP's within range or becoming range.

The applicant further submitted that Hirano does not disclose the station apparatus located front-most in the moving direction of the mobile body being adapted to transmit the information comprising a frequency of a plurality of frequencies acquired at the time of retrieving an access point apparatus to which the station apparatus located front-most in the moving direction of the mobile body is adapted to belong, to the station apparatus other than the station apparatus located front-most in the moving direction of the mobile body by way of the intra-mobile-body communication network. The examiner respectfully disagrees and acknowledges the applicant that Hirano suggests that in the case a transmitting at different frequencies from APs, switching related information are transmitted the among the plurality of station apparatuses (as depicted in figure 7B, note that apparatuses 33 are inter-connected by means 31) in the mobile body (See [0071] lines 8-10, [0072] lines 6-10). Therefore, Hirano discloses the station apparatus located front-most in the moving direction of the mobile body being adapted to transmit the information comprising a frequency of a plurality of frequencies acquired at the time of retrieving an access point apparatus to which the station apparatus located front-most in the moving direction of the mobile body is adapted to belong, to the station apparatus other than the station apparatus located front-most in the moving direction of the mobile body by way of the intra-mobile-body communication network.

Regarding claims 18, 19, 29, and 30, the applicant submitted that Hirano in view of Syed is deficient in anticipating the claimed features for the reason argued in the response and that Syed fails to cure the deficiency portrayed by Hirano as asserted by

the applicant. The examiner respectfully disagrees and submits that at least for the reason discussed above, Hirano in view of Syed does disclose the features as presented in claims 18, 19, 29, and 30.

In regards claim 22 and 32, the applicant submitted that Moelard does not cure the deficiency of Hirano and that one of ordinary skill in the art would not have looked to Moelard to teach that which the main reference state is disadvantageous. However, the examiner acknowledges the applicant that Hirano does disclose or suggest the AP s 11 transmitting at different frequencies and at least for the given feature claims 22 and 32 in view of Moelard are obvious to one of ordinary skill in the art and therefore rejected as indicated above. Claims 23-27 and 33-36 are dependent from independent claims 22 and 32 and thus inherit the deficiencies found in said independent claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ISSAM CHAKOUR whose telephone number is (571) 270-5889. The examiner can normally be reached on Monday-Thursday (8:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Perez Rafael can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/I. C./
Examiner, Art Unit 2617

/Rafael Pérez-Gutiérrez/
Supervisory Patent Examiner, Art Unit 2617